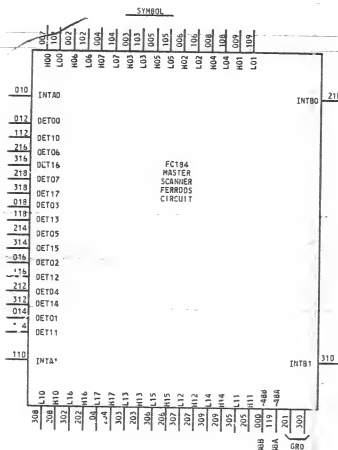


SHEET INDEX		
CONTENTS	SHEET NO.	SHEET ISSUE
SHEET INDEX SUPPORTING INFORMATION CURRENT DRAWING USED ON NOTES SYMBOL RECORD OF CHANGES	1	2
CIRCUIT SCHEMATIC	2	2
COMPONENT LIST	3	2
CIRCUIT DESCRIPTION		

SYMBOL MASTER SCANNER FERROS ELEMENT IDENT

TERM.	NO.	FUNC.	TERM.	LOC.
H00	I	07	2A1	
H01	I	009	2A8	
H02	I	006	2A6	
H03	I	007	2A4	
H04	I	008	2A7	
H05	I	005	2A5	
H06	I	002	2A3	
H07	I	004	2A4	
H10	I	208	2E1	
H11	I	209	2E8	
H12	I	207	2E6	
H13	I	203	2E4	
H14	I	209	2E7	
H15	I	206	2E5	
H16	I	202	2E2	
H17	I	204	2E3	
INTA0	I	010	2D3	
INTA1	I	110	2F0	
INTB0	I	210	2B9	
INTB1	I	310	2F9	
L00	I	107	2A2	
L01	I	109	2A8	
L02	I	106	2A6	
L03	I	103	2A5	
L04	I	108	2A7	
L05	I	105	2A5	
L06	I	102	2A3	
L07	I	104	2A4	
L10	I	208	2E1	
L11	I	209	2E8	
L12	I	207	2E6	
L13	I	203	2E4	
L14	I	209	2E7	
L15	I	206	2E5	
L16	I	202	2E2	
L17	I	204	2E3	
DET00	0	012	2C0	
DET01	0	014	2C2	
DET02	0	016	2C0	
DET03	0	013	2C0	
DET04	0	212	2C0	
DET05	0	214	2C0	
DET06	0	216	2C0	
DET07	0	218	2C0	
DET10	0	112	2C0	
DET11	0	114	2C0	
DET12	0	116	2C0	
DET13	0	118	2C0	
DET14	0	312	2C0	
DET15	0	314	2C0	
DET16	0	316	2C0	
DET17	0	318	2C0	



RECORD OF CHANGES				
DWG.	REV.	DATE	BY	NOTE
155				

NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS
CAPACITANCE VALUES ARE IN MICROFARADS
VALUES PRECEDED BY THE SYMBOL "K" (PLUS)
OR "M" (MINUS) ARE IN VOLTS.

- POWER AND GROUND TERMINALS FOR INTEGRATED CIRCUITS:

IC CODE	GRD. TERM.

- BATTERY AND GROUND TERMINALS FOR THIS CIRCUIT PACK ARE AS FOLLOWS:

FUNCTION	TERMINAL
GRD	201, 200
-5BA	11F
-4B8	000

- FERRO SENSOR DETECTION LEADS SHOULD BE COLLINEAR AND SEPARATED FROM:
A. LOW (L) AND HIGH (H) LEADS
B. INTERDIGATE (INT) LEADS

- HORIZONTAL MOUNTING CENTERS ARE 0.5 IN

- GROUND RETURN

SYSTEM USED ON	DESIGN CONTROL
NO. 3 ESS	DN

CURRENT DRAW:

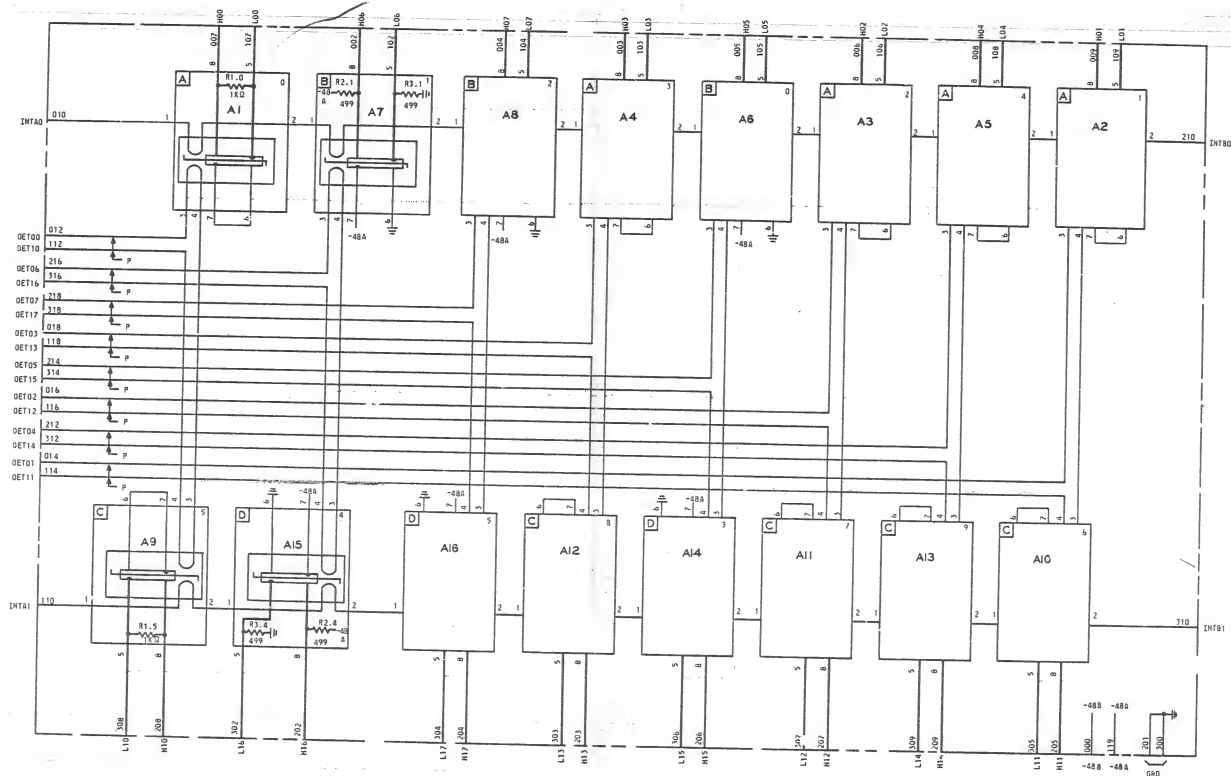
SHEET INDEX NOTES	
1. FOR SINGLE REISSUES, A CHANGED OR NEW SHEET WILL BE ASSIGNED THE SAME ISSUE NUMBER AS SHEET 1.	
2. FOR CONCURRENT REISSUES, A CHANGED OR NEW SHEET WILL BE ASSIGNED THE HIGHEST ISSUE NUMBER AFFECTING THAT SHEET.	
3. THE ISSUE NUMBER OF SHEET 1 IS RECORDED AS THE ISSUE NUMBER OF THE WHOLE DRAWING.	

SUPPORTING INFORMATION	
CATEGORY	NUMBER
CONNECTOR ON FRAME	947A, 947C OR 947E
CIRCUIT PACK INFORMATION DRAWING	
SERIES FOR LATEST CLASS "A" CHANGE	
ACCEPTABLE SERIES	1

NOTICE - NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

FC184 CIRCUIT PACK		1111	
MASTER SCANNER FERROS CIRCUIT			STATO STANDARD.
DWG SIZE	6S	ISSUE	2D1
BELL LABORATORIES	CPS - FC184		3 SHEETS

MASTER SCANNER FERRODS CIRCUIT



COMPONENT LIST

FERRRO SENSOR



DESIG	LOC	CODE
A1	281	
A2	283	
A3	284	
A4	286	
A5	282	
A6	284	
A7	285	
A8	287	
A9	2F0	
A10	2F2	
A11	2F4	
A12	2F6	
A13	2F2	
A14	2F3	
A15	2F5	
A16	2F7	

CIRCUIT DESCRIPTION (CONT)

FUNCTIONAL DESCRIPTION

THE FERRRO IS THE BASIC SCAN ELEMENT OF A SCANNER. IT CAN BE CONSIDERED A 2-WINDING TRANSFORMER WIDE COUPLING (THE ABILITY TO INDUCE A SIGNAL FROM THE PRIMARY WINDINGS TO THE SECONDARY WINDINGS) IS CONTROLLED BY THE AMOUNT OF CURRENT IN THE CONTROL WINDINGS. THE PRIMARY AND SECONDARY WINDINGS OF THE TRANSFORMER ARE ASSOCIATED WITH THE INTERROGATE AND READOUT WINDINGS, RESPECTIVELY.

RESISTORS

DESIG	CODE
[10] R1.0 - R1.9	KS-20416, L1A, 1KΩ
[11] R2.0 - R2.5	KS-20416, L1A, 499
[12] R3.0 - R3.5	KS-20416, L1A, 499

CIRCUIT DESCRIPTION

PURPOSE: CIRCUIT

THIS CIRCUIT PROVIDES 16 FERRRO SCAN POINT ELEMENTS WHICH ARE USED TO FORM THE MASTER SCANNER MATRIX.

THE FC184 FERRRO CIRCUIT PACK HAS 16 FERRROS (TYPE 2C) MOUNTED TO FORM A 2-BY-8 MATRIX. THE INTERROGATE WINDINGS OF THE (EIGHT) FERRROS WHICH FORM A HALF ROW ARE CONNECTED IN SERIES AND THE READOUT WINDINGS OF EACH FERRRO IN ONE HALF ROW IS CONNECTED IN SERIES WITH THE READOUT WINDINGS OF THE CORRESPONDING FERRRO IN THE OTHER HALF ROW. THE CONTROL WINDINGS OF TEN FERRROS ARE ARRANGED INTERNALLY IN THE LOOP CONFIGURATION WHILE THE CONTROL WINDINGS OF THE OTHER SIX FERRROS ARE ARRANGED INTERNALLY IN THE BATTERY AND GROUND CONFIGURATION.

IN THE LOOP CONFIGURATION, THE FERRRO CONTROL WINDINGS ARE CONNECTED IN A SERIES ALONG LOOP ON THE CIRCUIT PACK. BATTERY AND GROUND TO SATURATE THE FERRROS MUST BE SUPPLIED EXTERNALLY BY THE USING CIRCUIT. RESISTORS TO LIMIT THE CURRENT IN THE CONTROL WINDINGS MUST BE PROVIDED BY THE USING CIRCUIT.

IN THE BATTERY AND GROUND CONFIGURATION, THE -48V BATTERY AND GROUND ARE SUPPLIED THROUGH THE FERRRO CONTROL WINDINGS TO THE USING CIRCUIT. RESISTORS TO LIMIT THE CURRENT IN THE CONTROL WINDINGS MUST BE PROVIDED BY THE USING CIRCUIT. A 1000 OHM RESISTOR IS PROVIDED IN PARALLEL WITH THE CONTROL WINDINGS OF EACH LOOP TYPE FERRRO TO LIMIT THE VOLTAGE SURGE WHEN THE CURRENT TO THE CONTROL WINDINGS IS INTERRUPTED. SIMILARLY, A 499 OHM RESISTOR IS PROVIDED IN PARALLEL WITH EACH OF THE CONTROL WINDINGS OF EACH BATTERY AND GROUND TYPE FERRRO TO LIMIT VOLTAGE SURGES.

FC184 CIRCUIT PACK

BELL TELEPHONE LABORATORIES
INCORPORATED

CPS-FC184

SHEET 3

ISSUE
2D1